



RRB NTPC MODEL PAPER **5**



RRB NTPC CBT – I

MODEL PAPER – 5

1. First Indian woman Boxer to win Gold in Asian Games?

- a) Savita Devi
- b) Mary kom
- c) Kamini Devi
- d) Rukmani Singh

2. What is the main raw material in glass?

- a) Copper
- b) Zink
- c) Cadmium
- d) Silica

3. Chera Dynasty ruled which states of India?

- a) Karnataka & Goa
- b) Kerala & Tamilnadu
- c) Keral & Karnataka
- d) Tamil & Andhra

4. Black soil is also called?

- a) Desert oil
- b) Dark green soil
- c) Indian Regurs
- d) Mountain soil

5. Which country won maximum number of FIFA World Football Cup?

- a) Brazil

b) Argentina

c) France

d) Germany

6. First solar powered Airport in India?

- a) Chennai
- b) Goa
- c) Mumbai
- d) Kochi

7. Which is India's first defense satellite?

- a) GSAT 8
- b) GSAT 1
- c) GSAT – 7
- d) GSAT – 20

8. Which gas is mostly present in Venus atmosphere?

- a) Hydrogen
- b) Carbon Dioxide
- c) Helium
- d) Nitrogen

9. Who is the co-founder of Swaraj Party?

- a) Motilal Nehru
- b) Sardar Patel
- c) Jawaharlal Nehru
- d) B.R. Ambedkar

10. Who can participate in proceedings of the parliament without the Right to Vote?

- a) Chief Justice of India



- b) Comptroller and Auditor General
c) Attorney General of India
d) Army Chief
- 11.** The Difficultest Waterfall of India is in the state of
a) Andhra Pradesh
b) Assam
c) Maharashtra
d) Karnataka
- 12.** In which Ecosystem Grassland is included?
a) Marine
b) Fresh Water
c) Terrestrial
d) Artificial
- 13.** Who among the following revolutionaries was executed by the British?
a) Jatin Das
b) Chandrashekhar Azad
c) Rajguru
d) Kalpana Dutt
- 14.** The The coins of which of the following reveal their love for music?
a) Mauryas
b) Nandas
c) Guptas
d) Cholas
- 15.** Global Environment Outlook report has been released by which the following organization?
a) United Nations
b) World Bank
c) Intergovernmental Panel on Climate Change (IPCC)
d) United Nations Environment Program (UNEP)
- 16.** On which of the following state, efficiency of catalyst depends?
a) Physical state
b) Molecular state
c) Number of free electrons
d) Amount of catalyst.
- 17.** Renowned writer Krishna Sobti who recently passed away was best known for which language's literature?
a) Hindi
b) Gujarati
c) Tamil
d) Manipuri
- 18.** Who is the author of the book "India's Economic Policy : The Gandhian Blue Print"?
a) Jai Prakash Narayan
b) Acharya Vinoba Bhave
c) Dr. Manmohan Singh
d) Chaudhary Charan Singh.



19. Which Government had launched “Mission Buniyaad” to improve the learning skills of students?
- Kerala
 - Telangana
 - Uttar Pradesh
 - Delhi
20. Jat-Jatin folk dance is related to which state?
- Bihar
 - Odissa
 - Mizoram
 - Madhya Pradesh
21. SAARC is the association of _____
- European Countries
 - Oil Exporting Nations
 - South Asian Countries
 - South American Nations
22. _____ is a set of computer programs used on a computer to help perform tasks.
- An instruction
 - Software
 - Memory
 - A Processor
23. Which is the longest inland national waterway in India?
- National Water Ways 2 (NW2)
 - National Water Ways 1 (NW1)
 - National Water Ways 3 (NW3)
 - National Water Ways 4 (NW4)
24. On which day, the World Consumer Rights Day is celebrated?
- 14th March
 - 2nd March
 - 15th March
 - 21st March
25. Which continent is known as White Continent?
- Australia
 - Europe
 - Antarctica
 - Asia
26. Who called Gurudev 1st time to Rabindranath Tagore?
- S.C. Bose
 - Bal Gangadhar Tilak
 - Mahatma Gandhi
 - Lala Lajpathi Rai
27. Madhurai is situated on a river?
- Godavari
 - Vaigal
 - Krishna
 - Kaveri
28. India’s first super computer?
- MENEKA 9000



- b) PARAM 8000
c) DHRUV 2000
d) None
- 29.** The human body contains salt of ___ %
- a) 5% of the body's weight
b) 1.9% of the body's weight
c) 0.8% of the body's weight
d) 0.4% of the body's weight
- 30.** When was "Pradhan Mantri Sukanya Samridhi Yojana" launched?
- a) September 2014
b) August 2015
c) January 2015
d) January 2016
- 31.** Which was the first talkie feature film of India?
- a) Alam Ara
b) Shree Pundalik
c) Raja Harischandra
d) Keechaka Vadhan
- 32.** In which year India – Bhutan foundation was established?
- a) 1993
b) 1998
c) 2003
d) 2010
- 33.** Which type of Unemployment is generally seen in urban areas?
- a) Educated unemployment
b) Seasonal unemployment
c) Disguised unemployment
d) None of these.
- 34.** Which ruler is also known as the "second Ashoka"?
- a) Harshavardhana
b) Samudra Gupta
c) Kanishka
d) Chandra Gupta Maurya
- 35.** Phenomenon of organisms resembling others for escaping from enemies is called TM_____?
- a) Analogy
b) Adaptation
c) Mimicry
d) Homology
- 36.** Masses of stars and galaxies are measured in _____
- a) Neutron mass
b) Solar Mass
c) Earth Mass
d) Kilograms
- 37.** Union Government has approved construction of a Metro Rail Project for which city on 13th February, 2019?
- a) Ludhiana
b) Nasik
c) Patna



- d) Aurangabad
38. The fundamental rights of Indian Citizens can be suspended
- a) During National Emergency
 - b) During Financial Emergency
 - c) Anytime
 - d) In any situation
39. What is the full form of "IRBM"?
- a) Intermediate Resource Ballistic Missile
 - b) Intermediate Range Ballistic Missile
 - c) Intermediate Range of Ballistic Missile
 - d) Intermediate Range Ballistic Missile
40. In which of the following city Elephant Festival is celebrated annually?
- a) Jaipur
 - b) Jodhpur
 - c) Kota
 - d) Ajmer
41. Oxygen : Burn :: Carbon dioxide : ?
- a) Isolate
 - b) Foam
 - c) Extinguishes
 - d) Explode
42. PST : 01 :: NPR : ?
- a) 3
 - b) 4
 - c) 1
 - d) 7
43. Number of letters skipped in between adjacent letters in the series decreases by one. Which of the following series is observing the rule?
- a) OXMYA
 - b) AZXUA
 - c) QUXZA
 - d) AEIKL
44. BAG = 71, then VICE = ?
- a) 69
 - b) 70
 - c) 75
 - d) 90
45. In a certain code language, 481 means "sky is blue", 246 means "sea is deep", and 698 means "sea looks blue". What number is the code for "blue"?
- a) 1
 - b) 6
 - c) 8
 - d) 9
46. 3, 9, 6, 36, 30, ?
- a) 270
 - b) 250
 - c) 200
 - d) 300
47. 12, 19, 35, 59, 90, ?



- a) 134
- b) 127
- c) 132
- d) 98

48. If $4*2@3=6$, $18*6@4=12$, then what will be the value of $24*3@7=?$

- a) 21
- b) 27
- c) 72
- d) 56

49. Deepak said to Nitin, "That boy playing with the foot ball is the younger of the two brothers of the daughter of my father's wife". How is the boy playing foot ball related to Deepak?

- a) Son
- b) Brother
- c) Cousin
- d) Brother-in-law

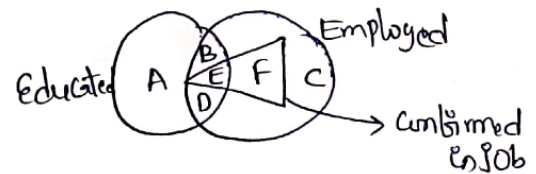
50. Which of the following expressions will be true, if the expression $R > O = A > S < T$ is definitely true?

- a) $O > T$
- b) $S < R$
- c) $T > A$
- d) $S = O$

51. A, B, C and D are playing cards on a square table. A and C and B and D are partners. D is the right of C. The face of C is towards West. Find the Direction of D is facing?

- a) West
- b) East
- c) South
- d) North

52. Study the following Venn diagram and find the region representing persons who are educated and employed but not confirmed.



- a) A, C
- b) A, B, C
- c) B, D
- d) A

Directions: (Q.No. 53 -55)

The questions given below have a statement followed by two conclusions I and II. Consider the statement and following conclusions and decide which of the following conclusions follows from the statement.

Give answer

- a) If conclusion I follows
- b) If conclusion II follows
- c) If neither conclusion I or nor II follows
- d) If both conclusions I and II follow.

53. **Statement :** Sick people need medicine

Conclusions:



- I) Healthy people do not need medicine
- II) People keep medicine in their home

54. Statement : I Know nothing except the fact of my ignorance

Conclusions:

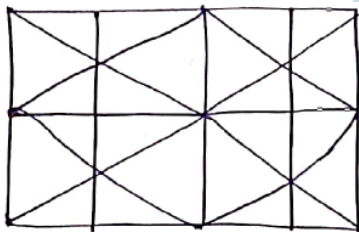
- I) writer's knowledge is very poor.
- II) The world of knowledge is too vast to be explored by a single person.

55. Statement : India's economy is dependent mainly on forests.

Conclusions:

- I) Trees should be preserved to improve the Indian Economy
- II) India wants only maintenance of forests to improve Economic condition.

56. How many straight lines in the given figure.



- a) 11
- b) 14
- c) 16
- d) 17

57. Statements: Some movies are films.

No film is a show.

All shows are pictures

Conclusions: I) At least some pictures are films.

II) No show is a movie.

- a) If only conclusion I follows
- b) If only conclusion II follows
- c) If either conclusion I (or) II follows
- d) If neither conclusion I (nor) II follows.

58. A man is facing west. He turns 45° in the clockwise direction and then another 180° in the same direction and then 210° in the anti-clockwise direction, which direction is he facing now?

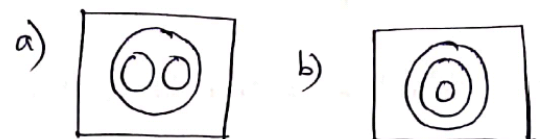
- a) South
- b) North-West
- c) West
- d) South-West

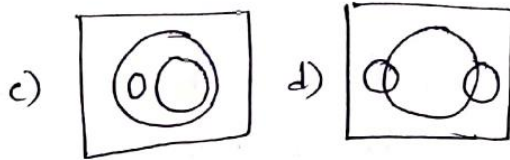
59. Sati is elder than Renu, Geeta is younger than Renu while Priya is elder than Sati. Who is the eldest?

- a) Priya
- b) Sati
- c) Renu
- d) Geeta

60. Identify the diagram that best represents the relationship among the given classes.

Nation, states and Districts





61. In the following question, select the missing number from the given series?

5	12	18
6	11	12
61	265	?

- a) 465
- b) 470
- c) 468
- d) 430

62. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

?, planning, strategy, marketing, finance.

- a) Realization
- b) Success
- c) Failure
- d) Idea

63. If PAINTER is coded EWLJNAP, Then how will PEACOCK be coded as?

- a) TALYGYK
- b) WALYGYK
- c) WALYGGO
- d) WALGYK

64. Z, A, U, F, P, ?

- a) K
- b) M
- c) N
- d) O

65. The difference between a positive proper fraction and its reciprocal is $\frac{9}{20}$. The fraction is

- a) $\frac{3}{5}$
- b) $\frac{3}{10}$
- c) $\frac{4}{5}$
- d) $\frac{5}{4}$ TM

66. Three numbers are in the ratio 1: 2: 3 and their H.C.F is 12. The numbers are

- a) 4, 8, 12
- b) 5, 10, 15
- c) 10, 20, 30
- d) 12, 24, 36

67. Product of two co-prime numbers is 117. Their LCM should be:

- a) 1
- b) 117
- c) Equal to their H.C.F
- d) Can't calculated

68. The Sum of $\bar{2}.75 + \bar{3}.78$ is equal to

- a) 1.03
- b) $\bar{1}.53$
- c) $\bar{4}.53$



d) $\bar{5}.53$

69. What is the value of $\frac{(P+Q)}{(P-Q)}$ if $\frac{P}{Q} = 7$?

a) $\frac{1}{3}$

b) $\frac{2}{3}$

c) $\frac{4}{3}$

d) $\frac{7}{8}$

70. $\sqrt[3]{4\frac{12}{125}} = ?$

a) $1\frac{2}{5}$

b) $1\frac{3}{5}$

c) $1\frac{4}{5}$

d) $2\frac{2}{5}$

71. Present ages of X and Y are in the ratio 5:6 respectively seven years hence this ratio will become 6:7 respectively. What is X's present age in years?

a) 35

b) 42

c) 49

d) Can't be determined

72. If $3^{(x-y)} = 27$ and $3^{(x+y)} = 243$, then x is equal to

a) 0

b) 2

c) 4

d) 6

73. For a triangle base is $6\sqrt{3}$ cm and two base angles are 30° and 60° . Then height of the triangle is

a) $3\sqrt{3}$ cm

b) 4.5 cm

c) $4\sqrt{3}$ cm

d) $2\sqrt{3}$ cm

74. If a sum of money amounts to Rs. 12,900 and Rs. 14,250 at the end of 4th year and 5th year respectively at a certain rate of simple interest, then the rate of interest is

a) 10%

b) 12%

c) 18%

d) 20%

75. Akash is 3 times as good a workman as Baldev and therefore is able to finish a job in 40 days. Working together, they can finish it in

a) 30 days

b) 60 days

c) 20 days

d) 10 days

76. If selling price is doubled, the profit triples. Find the profit percent.

a) $66\frac{2}{3}$

b) 100

c) $105\frac{1}{3}$

d) 120



77. A fraction which bears the same ratio to $\frac{1}{27}$ that $\frac{3}{11}$ does to $\frac{5}{9}$, is equal to :

- a) $\frac{1}{55}$
- b) $\frac{1}{11}$
- c) $\frac{3}{11}$
- d) 55

78. One pipe can fill a tank three times as fast as another pipe. If together the two pipes can fill the tank in 36 minutes, then the slower pipe will be able to fill the tank in

- a) 81 min
- b) 108 min
- c) 144 min
- d) 192 min

79. The total surface area of a hemisphere is 1848 sq cm, what is its radius?

- a) 28 cms
- b) 7 cm's
- c) 21 cm's
- d) 14 cm's

80. A student multiplied a number by $\frac{5}{8}$ instead of $\frac{8}{5}$. What is the percentage error in the calculation?

- a) 60.94%
- b) 156%
- c) 30.47%
- d) 78%

81. If $(2a - 3)^2 + (3b + 4)^2 + (6c + 1)^2 = 0$, then value of $\frac{a^3 + b^3 + c^3 - 3abc}{a^2 + b^2 + c^2} + 3$ is

- a) $abc + 3$
- b) 0
- c) 6
- d) 3

82. If $\sin(A + B) = \sin A \cos B - \cos A \sin B$, then $\sin 15^\circ$ will be

- a) $\frac{\sqrt{3}+1}{2\sqrt{2}}$
- b) $\frac{\sqrt{3}}{2\sqrt{2}}$
- c) $\frac{\sqrt{3}-1}{-\sqrt{2}}$
- d) $\frac{\sqrt{3}-1}{2\sqrt{2}}$

83. Find the value of x where $(x + 1)(5 - 8x)$ will be maximum

- a) $-\frac{3}{8}$
- b) $\frac{3}{8}$
- c) $-\frac{3}{16}$
- d) $\frac{3}{16}$

84. If the standard deviation of a distribution is 9, what is the value of variance?

- a) 18
- b) 27
- c) 81
- d) 36



85. If $\sin\theta - \cos\theta = 0$, then the value of the following exp session is $\sin^6 + \cos^6\theta = ?$

- a) 1
- b) $\frac{3}{4}$
- c) $\frac{1}{2}$
- d) $\frac{1}{4}$

86. If $x^{51} + 51$ is divided by $(x + 1)$, where x is greater than 50, the remainder is

- a) 0
- b) 1
- c) 49
- d) 50

87. The mean of the data

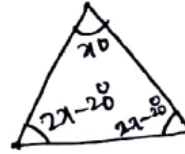
$\frac{3}{2}, 1, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \frac{1}{2}, 2, \frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{2}{3}, \frac{1}{3}$ is

- a) $\frac{7}{4}$
- b) $\frac{3}{4}$
- c) $\frac{5}{4}$
- d) $\frac{4}{3}$

88. While selling, a businessman allows 40% discount on the marked price and there is a loss of 30%. If it is sold at the marked price, profit percent will be

- a) 10%
- b) 20%
- c) $16\frac{2}{3}\%$
- d) $16\frac{1}{3}\%$

89. What is the value of X in the given figure.



- a) 30
- b) 40
- c) 44
- d) 64

90. $5852 \div 28 \times ? - 1653 = 1064$

- a) 9
- b) 13
- c) 15
- d) 18

91. Earth's gravitational pulling minimum is

- a) Troposphere
- b) Stratosphere
- c) Thermosphere
- d) Exosphere

92. Which of the following is a scalar quantity?

- a) Electric field
- b) Average velocity
- c) Power
- d) Magnetic Momentum

93. 'Jamini Roy' was a famous

- a) Dance



- b) Magician
- c) Yuan
- d) Tokyo House

94. If $\sqrt{4^n} = 1024$, then value of n is

- a) 5
- b) 8
- c) 10
- d) 12

95. Who wrote Malavikagnimitram?

- a) Bhasa
- b) Kariraya
- c) BanaBhatta
- d) Kalidasa

96. What is the retirement age of Supreme Courte Judges?

- a) 61 years
- b) 63 years
- c) 65 years
- d) 68 years

97. Find odd one

- a) 443
- b) 633
- c) 821
- d) 245

98. Complete the series 4, 11, 30, 67, 128, ?

- a) 219

b) 228

c) 231

d) 237

99. Find odd one?

- a) Islamabad
- b) Kabul
- c) Canberra
- d) Sydney

100. $\frac{6.5 \times 4.7 + 6.5 \times 5.3}{1.3 \times 7.9 - 1.3 \times 6.9} = ?$

- a) 3.9
- b) 39
- c) 34.45
- d) 50



Solutions:

1. (b)
2. (d)
3. (b)
4. (c)
5. (a)
6. (d)
7. (c)
8. (b)
9. (a)
10. (c)
11. (d) Created by the Sharavathi River falling from a height of 253 meters (829 ft)
12. (c) A terrestrial ecosystem is an ecosystem found only on Land forms.
Eg: tundra, taiga
13. (c)
14. (c)
15. (d)
16. (b) In molecular state, the efficiency of catalyst controls the rate of reaction.
17. (a) Renowned Hindi writer Krishna Sobati passed away in New Delhi on 22nd March 2019.
18. (d)
19. (d) This mission was basically for children of classes III to IX in Govt. and Municipal Corporation Schools.
20. (a)
21. (c)
22. (b)
23. (b) NW1 → Starts from Allahabad to Haldia
24. (c)
25. (c)
26. (c)
27. (b)
28. (b)
29. (d)
30. (c)
31. (a) TM
32. (c)
33. (a)
34. (c)
35. (c)
36. (b)
37. (c)
38. (a)
39. (b)
40. (a)
41. (c) Oxygen enhances the fire and “Carbon dioxide” extinguishes the fire.
42. (a)
Positional values



$$\begin{array}{ccc}
 P & S & T \\
 \downarrow & \downarrow & \downarrow \\
 16 & + 19 & + 20 = 55
 \end{array}$$

Digits sum = 5+5 = 10

Again digits sum = 1+0 = 1

Similarly,

$$\begin{array}{ccc}
 N & P & R \\
 \downarrow & \downarrow & \downarrow \\
 14 & + 16 & + 18 = 48
 \end{array}$$

Digits Sum = 4+8 = 12

Again digits sum = 1+2 = 3

43. (c) Acc. to Question

$$\begin{array}{ccccc}
 Q & U & X & Z & A \\
 \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\
 +4 & +3 & +2 & +1 &
 \end{array}$$

Correct pattern is QUXZA

44. Using backward letter positions

$$\begin{array}{ccc}
 25 & 26 & 20 \\
 \text{As } B & A & G \Rightarrow 25 + 26 + 20 = 71
 \end{array}$$

Similarly,

$$\begin{array}{ccc}
 V & I & C & E \\
 5 & 18 & 24 & 22 \Rightarrow 5 + 18 + 24 + 22 = 69
 \end{array}$$

45. Acc. question we have

4. \triangle → sky (blue) →
 2. \square → sea is deep
 6. \triangle → sea looks blue →
 from 1 & 11 it is clear that blue = 8

46. (a) Pattern of the series as shown below

$$\begin{array}{cccccc}
 3 & 9 & 6 & 36 & 20 & \underline{270} \\
 \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \\
 \times 3 & - 3 & \times 6 & - 6 & \times 9 &
 \end{array}$$

47. (b) Pattern of the series as shown below

$$\begin{array}{cccccc}
 12 & 19 & 35 & 59 & 90 & \boxed{127} \\
 \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \\
 +7 & +16 & +24 & +31 & +37 & \\
 \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \\
 +9 & +8 & +7 & +6 & & \\
 \uparrow & \uparrow & \uparrow & \uparrow & & \\
 -1 & -1 & -1 & & &
 \end{array}$$

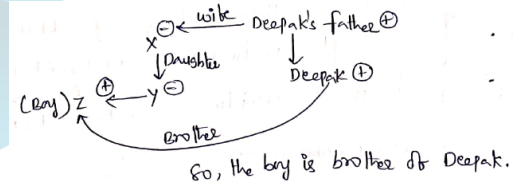
48. (d) Here * sign → division

@ sign → multiplication

$$4 \div 2 \times 3 = 6, \quad 18 \div 6 \times 4 = 12,$$

Therefore, $24 \div 3 \times 7 = 56$

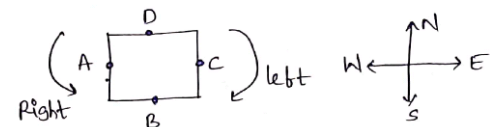
49. (b) According to the question



50. (b) We will check each option one-by-one

- a) $O > T \rightarrow$ False
- b) $S < R \rightarrow$ True
- c) $T > A \rightarrow$ False
- d) $S = O \rightarrow$ False

51. (c) Arrangement Acc. to question as follows



Clearly D is facing North



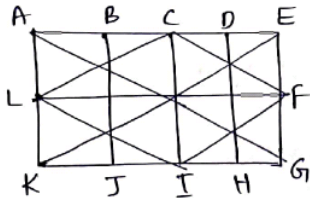
52. (c) In the diagram letters Band D rep the Region of the persons who are educated & employed, but not confirmed.

53. (a)

54. (b) Only II follows because this statement is a quote given by the Greek philosopher Socrates which implies that knowledge of word is too vast to be explored by single person.

55. (a)

56. (b)



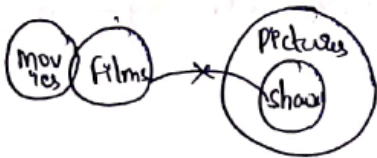
Horizontal lines = AE, LF, KG = 3

Vertical lines = AK, BJ, CI, DH, EG = 5

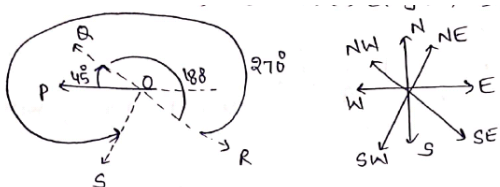
Slant lines = CL, CF, IL, IF, AG, EK = 6

∴ Total number of lines = 3+5+6

57. (d) Acc to question, Venn diagram as follows



58. (d) Acc to question, the direction diagram as shown below



from fig, finally he is facing the OS direction which is South-West.

59. (a) $S > R$ $R > G$ $P > S$

on arranging above data

$P > S > R > G$

So, Priya is the eldest

60. (b)



61. (c) The elements in 3rd row = Sum of squares of respective elements in 1st & 2nd row.

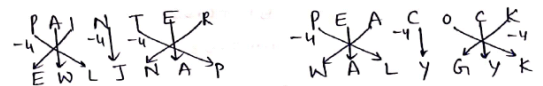
$$5^2 + 6^2 = 61$$

$$12^2 + 11^2 = 265$$

$$18^2 + 12^2 = 468$$

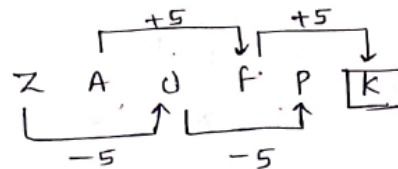
62. (d) Idea → Planning → Strategy → Marketing → Finance.

63. (b)



PEACOCK ⇒ WALYGYK

64. (a) Pattern of the series as shown below.



Hence, the missing term is K

65. (c) Let required fraction be x, then $\frac{1}{x} -$

$$x = \frac{9}{20}$$



$$\therefore \frac{1-x^2}{x} = \frac{9}{20} \Rightarrow 20 - 20x^2 = 9x$$

$$\Rightarrow 20x^2 + 9x - 20 = 0$$

$$\Rightarrow 20x^2 + 25x - 16x - 20 = 0$$

$$\Rightarrow 5x(4x + 5) - 4(4x + 5) = 0$$

$$\Rightarrow (4x + 5)(5x - 4) = 0$$

$$\Rightarrow x = \frac{4}{5}$$

66. (d) Let the required numbers x , $2x$ & $3x$.
Then H.C.F = x ,

So $x = 12$

\therefore Numbers are 12, 24 and 36.

67. (b) H.C.F. of co-prime numbers = 1

LCM \times HCF = Product of two numbers

$$\therefore LCM = \frac{117}{1} = 117$$

68. (c)

$$2.75 + 3.78$$

$$= (-2 + 0.75) + (-3 + 0.78)$$

$$= -5 + (0.75 + 0.78)$$

$$= -5 + 1.53$$

$$= -5 + 1 + 0.53$$

$$= -4 + 0.53$$

$$= -4.53$$

69. (c)

$$\frac{P+Q}{P-Q} = \frac{\frac{P}{Q} + 1}{\frac{P}{Q} - 1} = \frac{7+1}{7-1}$$

$$= \frac{8}{6} = \frac{4}{3}$$

70. (b)

$$\sqrt[3]{4 \frac{12}{125}} = \sqrt[3]{\frac{512}{125}} = \left(\frac{8 \times 8 \times 8}{5 \times 5 \times 5}\right)^{\frac{1}{3}} = \frac{8}{5} = 1 \frac{3}{5}$$

71. (a) .

$x : y$

$$5 : 6 \quad \left. \vphantom{5 : 6} \right\}^{-1} \quad IP = 7$$

$$IP = 7$$

x age now = 6 parts

$$= 7 \times 5$$

$$= 35 \text{ years}$$

72. (c) $3^{x-y} = 27 \Rightarrow 3^{(x-y)} = 3^3$

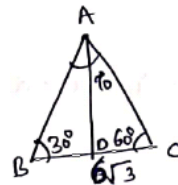
$$3^{x+y} = 243 = 3^5$$

$$\Rightarrow x - y = 3 \rightarrow (i)$$

$$\Rightarrow x + y = 5 \rightarrow (ii)$$

by solving i , ii we get $x = 4$

73. (b)



$$\sin 30^\circ = \frac{AC}{BC} \Rightarrow \frac{1}{2} = \frac{AC}{6\sqrt{3}} \Rightarrow AC = 3\sqrt{3}$$

$$\Rightarrow \sin 60^\circ = \frac{AD}{AC} = \frac{\sqrt{3}}{2} = \frac{AD}{3\sqrt{3}}$$



$$\Rightarrow AD = \frac{3\sqrt{3} \times \sqrt{3}}{2} = 4.5 \text{ cm}$$

74. (c)

$$\text{S. I. Rate} = \frac{(14,250 - 12,900) \times 100}{12900 \times 5 - 14200 \times 4} \%$$

$$= 18 \%$$

75. (a) Working capacity of Akash = $3x$ unit per day

$x \rightarrow$ Capacity of Baldev

$$\text{Total work} = 40 * 3x = 120x \text{ unit}$$

number of days taken by both working together

$$= \frac{120x}{(x + 3x)}$$

$$= 30$$

76. (b) Let CP = x , S.P = y

$$\text{Then } 3(y - x) = (2y - x) \Rightarrow y = 2x$$

$$\text{Profit} = \text{Rs. } (y - x) = \text{Rs } (2x - x) = \text{Rs. } x$$

$$\therefore \text{Profit \%} = \left(\frac{x}{x} \times 100\right) \% = 100\%$$

77. (a) Let

$$x : \frac{1}{27} : \frac{3}{11} : \frac{5}{9} \text{ Then } x \times \frac{5}{9} = \frac{1}{27} \times \frac{3}{11}$$

$$\Rightarrow x = \left(\frac{1}{27} \times \frac{3}{11} \times \frac{9}{5}\right) = \frac{1}{55}$$

78. (c) Let slower pipe alone fill the tank in 'x' minutes

$$\text{Faster pipe} = \frac{x}{3} \text{ min}$$

$$\therefore \frac{1}{x} + \frac{3}{x} = \frac{1}{36} \Rightarrow \frac{4}{x} = \frac{1}{36}$$

$$\Rightarrow x = 144 \text{ min}$$

79. (d)

$$\text{Total surface area of hemisphere} = 3\pi r^2$$

$$1848 = 3 \times \frac{22}{7} \times r^2$$

$$\Rightarrow r = 14 \text{ cms}$$

80. (a)

$$\text{Error} = \frac{\text{Correct} - \text{Incorrect}}{\text{Correct}} \times 100$$

$$= \frac{\frac{8}{5} - \frac{5}{8}}{\frac{8}{5}} \times 100 = \frac{64 - 25}{64} \times 100$$

$$= 60.94\%$$

81. (d)

$$(2a - 3)^2 + (3b + 4)^2 + (6c + 1)^2 = 0$$

$$2a - 3 = 0 \Rightarrow a = \frac{3}{2}; b = \frac{-4}{3}; c = \frac{-1}{6}$$

$$(a + b + c) = \frac{9 - 8 - 1}{6} = 0$$

$$\therefore a^3 + b^3 + c^3 - 3abc = 0$$

$$\therefore \frac{a^3 + b^3 + c^3 - 3abc}{a^2 + b^2 + c^2} + 3$$

$$= 0 + 3 = 3$$

82. (d) Let $A = 45^\circ$, $B = 30^\circ$

$$\sin(45^\circ - 30^\circ)$$

$$= \sin 45^\circ \cos 30^\circ - \cos 45^\circ \sin 30^\circ$$

$$= \frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} - \frac{1}{\sqrt{2}} \times \frac{1}{2}$$

$$= \frac{\sqrt{3}}{2\sqrt{2}} - \frac{1}{2\sqrt{2}} = \frac{\sqrt{3} - 1}{2\sqrt{2}}$$

83. (c)



$$(x + 1)(5x - 8x) = -8x^2 - 3x + 5$$

we know that 'x' is max at $x = \frac{-b}{2a}$

$$x = \frac{-(-3)}{2(-8)} = \frac{3}{-16}$$

84. (c) Variance = σ^2

$\sigma \rightarrow$ Standard duration

$$\therefore \text{Variance} = 9^2 = 81$$

85. (d)

$$\sin\theta = \cos\theta$$

$$\boxed{\theta = 45^\circ}$$

$$\left(\frac{1}{\sqrt{2}}\right)^6 + \left(\frac{1}{\sqrt{2}}\right)^6$$

$$\frac{1}{8} + \frac{1}{8} = \frac{2}{8} = \frac{1}{4}$$

86. (d)

Req. value = value obtained on putting
 $x+1 = 0 \quad x = -1$

$$= (-1)^{51} + 51 = -1 + 51 = 50$$

87. (b)

$$\text{Mean} = \frac{(1+2+2 \times \frac{1}{4} + 2 \times \frac{3}{4} + \frac{2}{3} + 3 \times \frac{1}{2} + \frac{3}{2})}{12}$$

$$= \frac{9}{12}$$

$$= \frac{3}{4}$$

88. (c)

$$\text{C.P} * 70 = \text{MP} * 60$$

$$\frac{\text{CP}}{\text{MP}} = \frac{60}{70} = \frac{6}{7}; \text{ if S.P} = \text{M.P} = 7$$

$$\text{Profit \%} = \frac{1}{6} = 16.66\%$$

89. (c) Sum of angles in a Triangle = 180°

$$(2x - 20)^\circ + (2x - 20)^\circ + x^\circ = 180^\circ$$

$$\Rightarrow 5x = 180 + 40$$

$$= 220$$

$$x = 44^\circ$$

90. (b) by cross-checking options.

91. (d)

92. (c)

93. (a)

94. (c) TM

95. (d)

96. (c)

97. (b)

$$443 = 4 + 4 + 3 = 11$$

$$633 = 6 + 3 + 3 = 12$$

$$821 = 8 + 2 + 1 = 11$$

$$245 = 2 + 4 + 5 = 11$$

98. (a)

$$4 = 1^3 + 3$$

$$11 = 2^3 + 3$$

$$30 = 3^3 + 3$$

$$67 = 4^3 + 3$$

$$128 = 5^3 + 3$$

$$\text{Similarly } ? = 6^3 + 3 = 216 + 3 = 219$$



99. (d) All are capital's of some country
except 'Sydney'

Islamabad → Pakistan

Kabul → Afganistan

Canberra → Australia

100. (d)

